

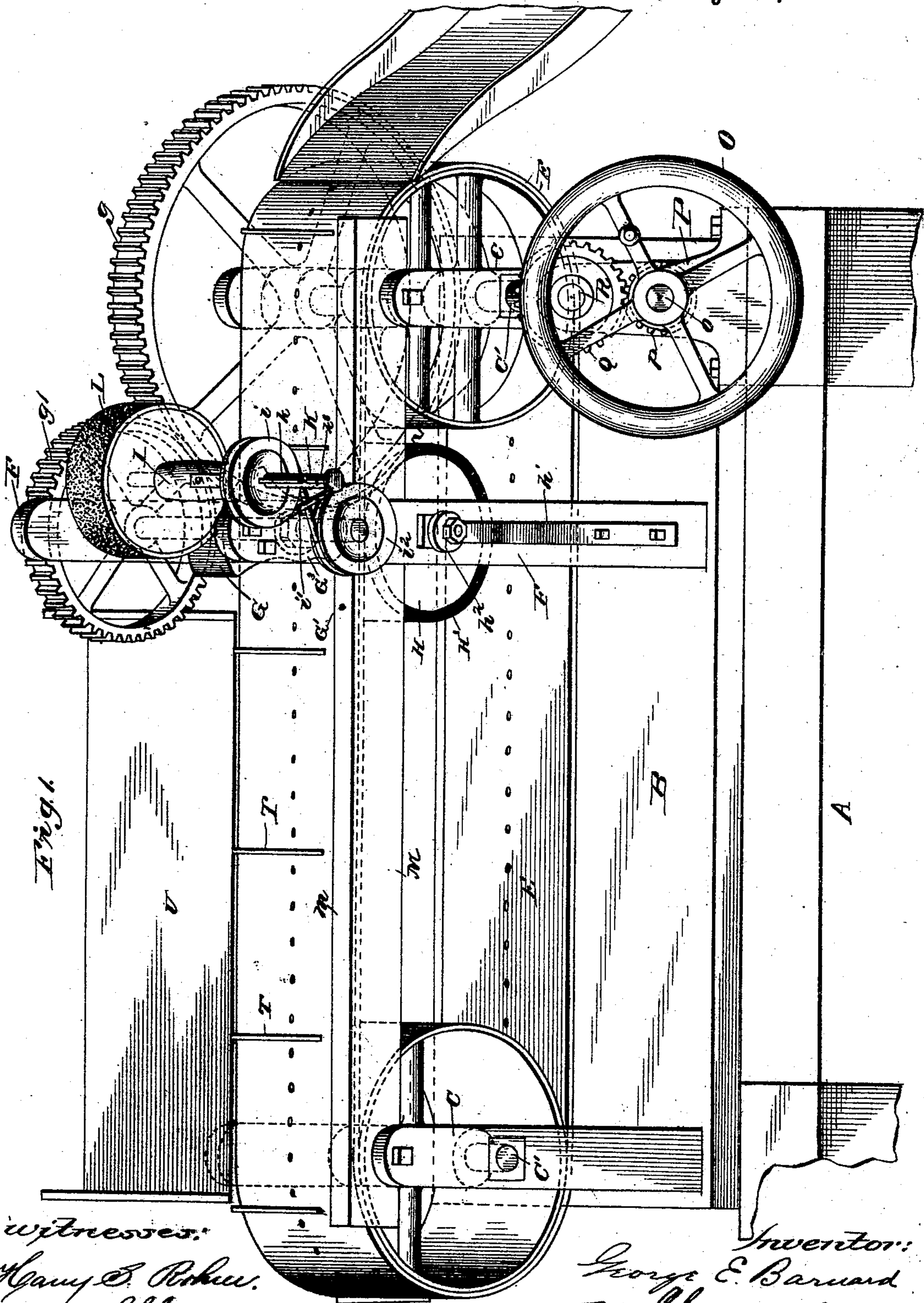
(No Model.)

4 Sheets—Sheet 1.

G. E. BARNARD.
MAIL MARKING MACHINE.

No. 501,816.

Patented July 18, 1893.



witnesses:
Harry C. Parker.
Oly. Stewart.

Inventor:
George E. Barnard
By Charles H. Hurd
His Attorneys.

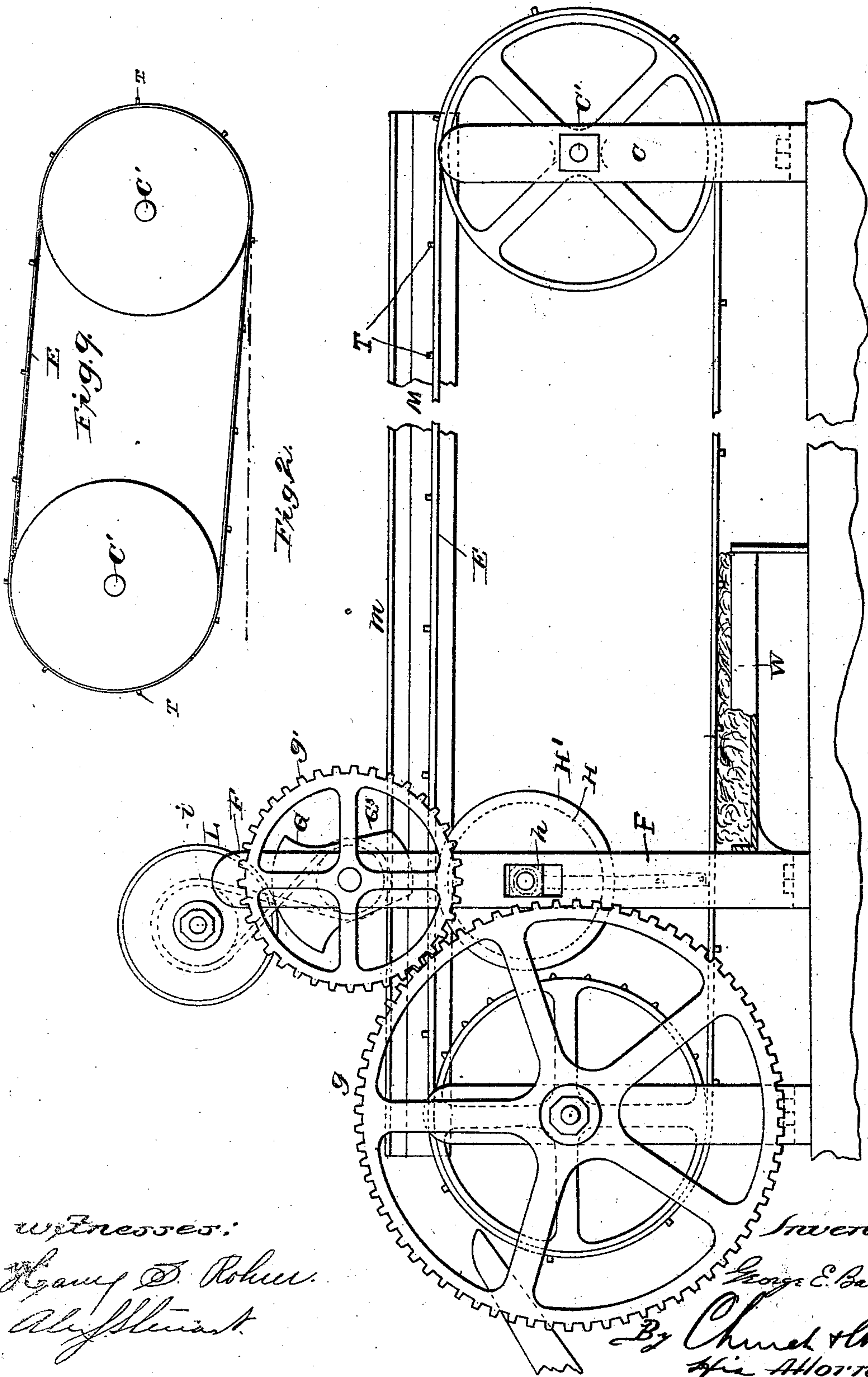
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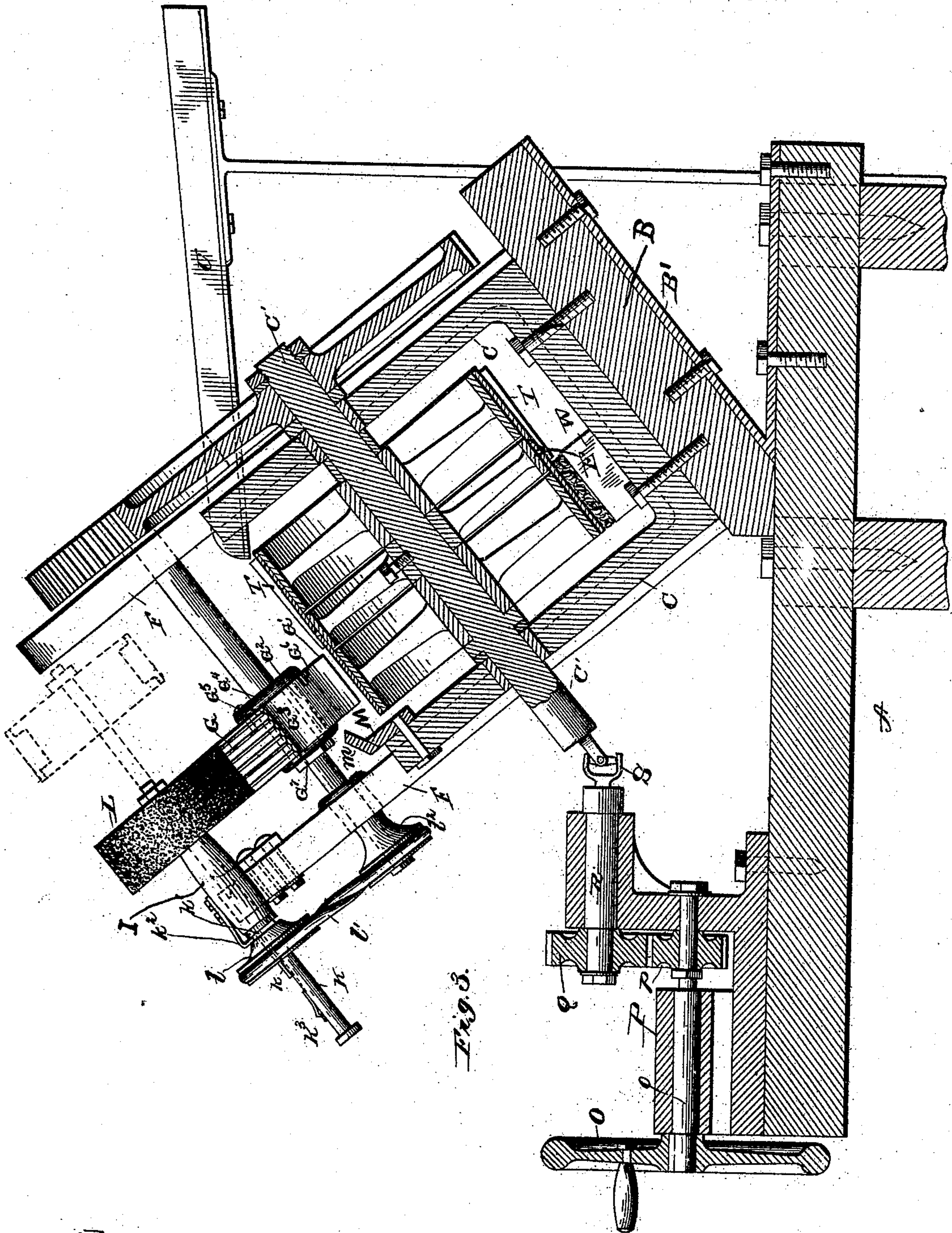
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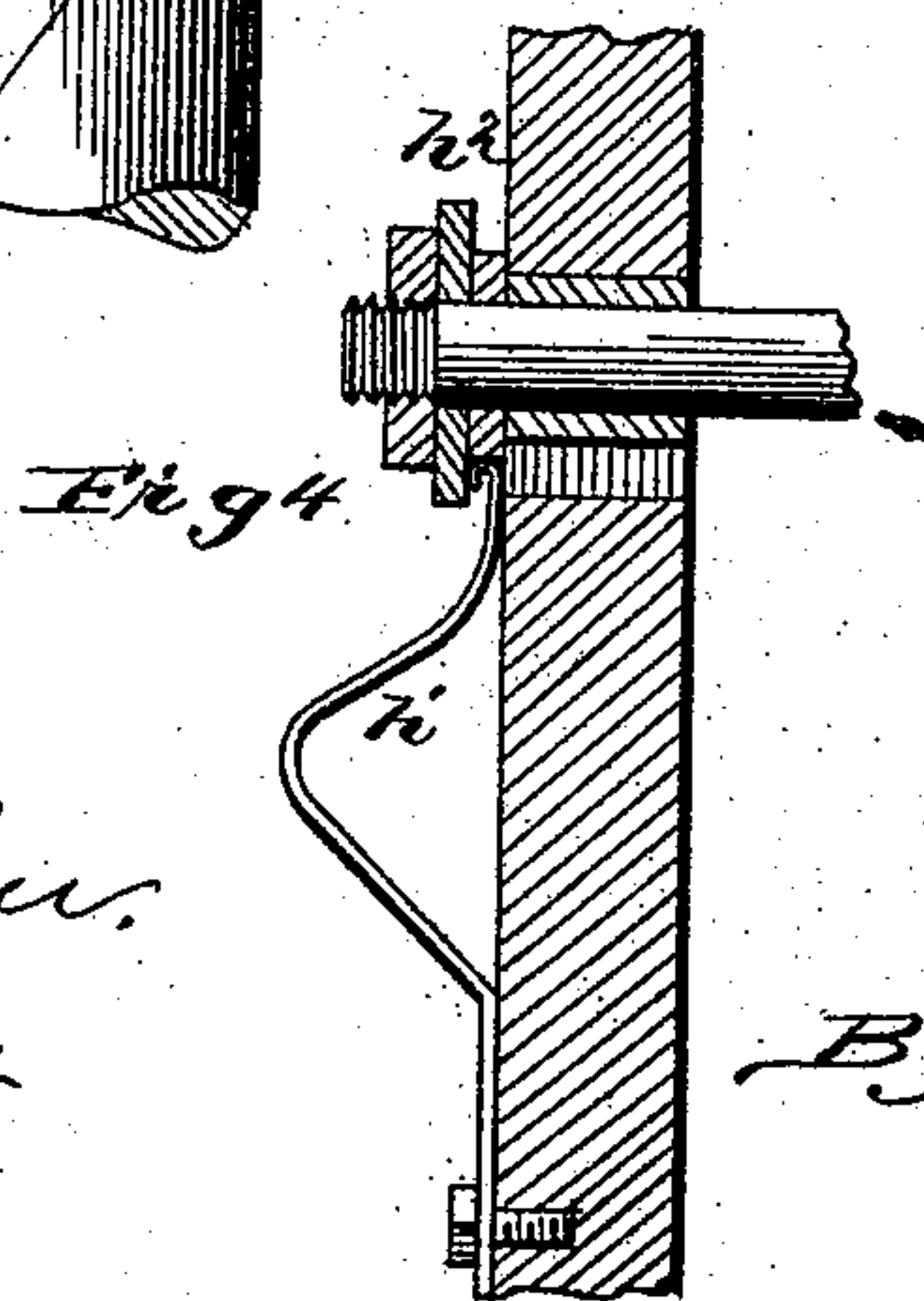
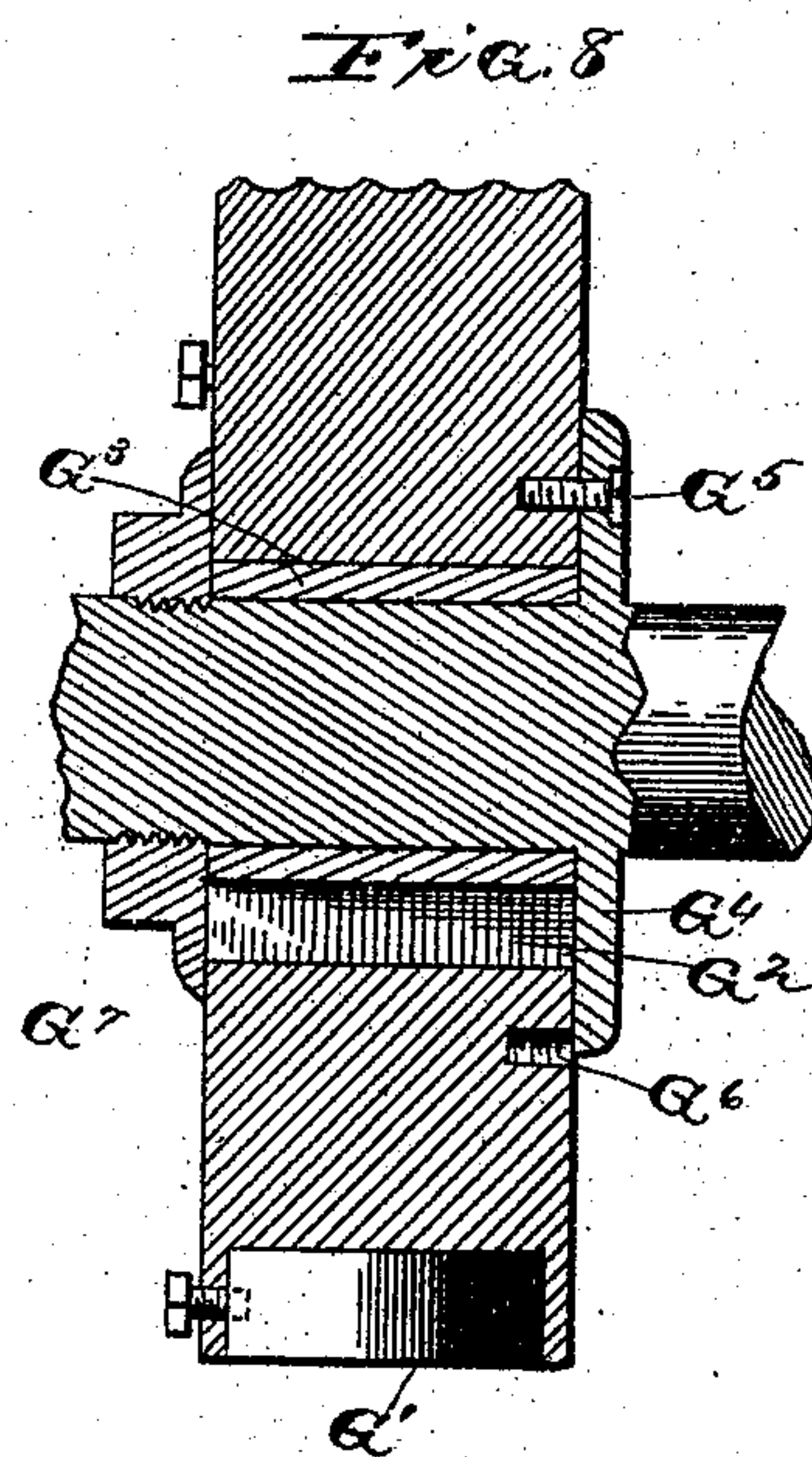
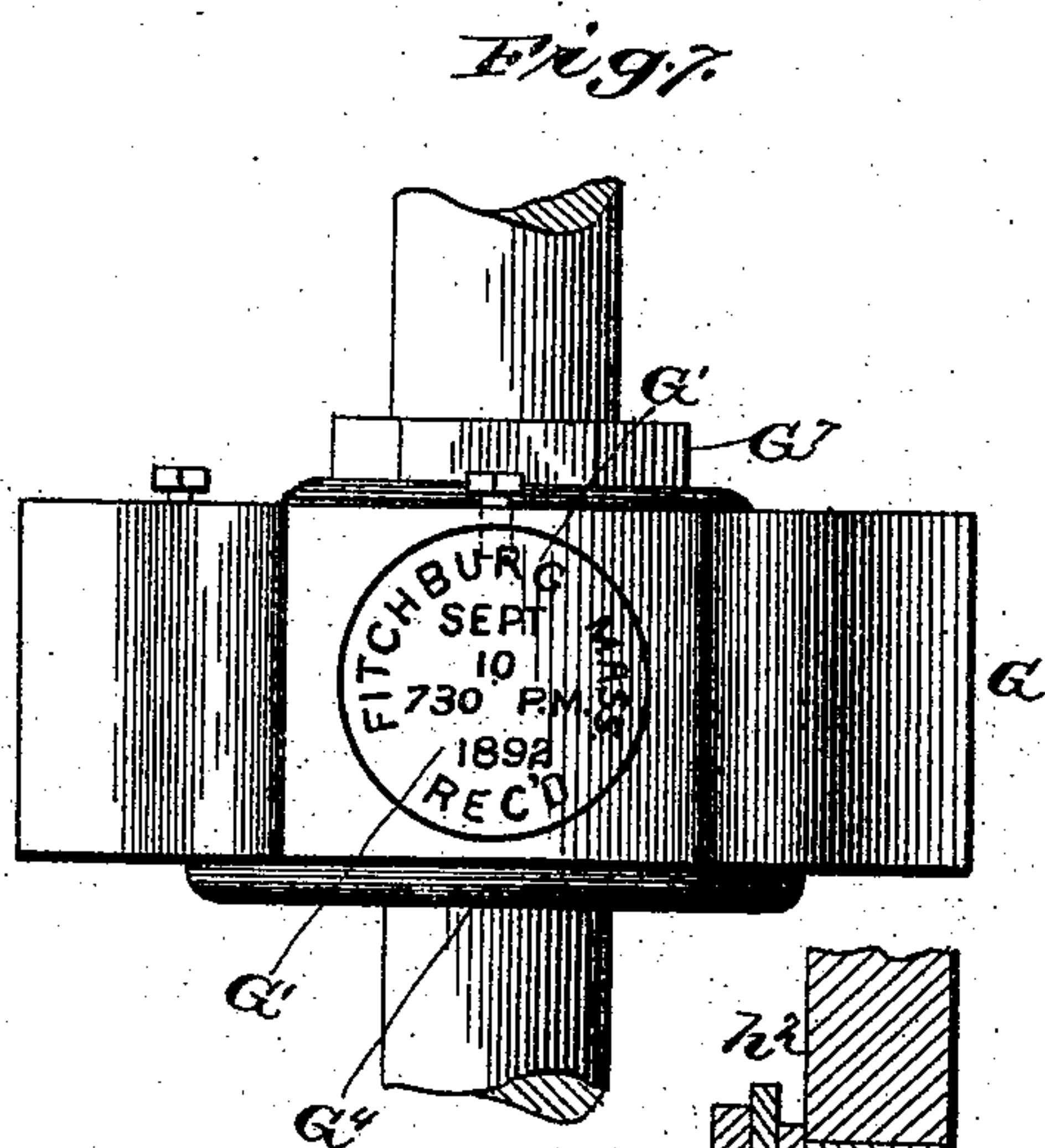
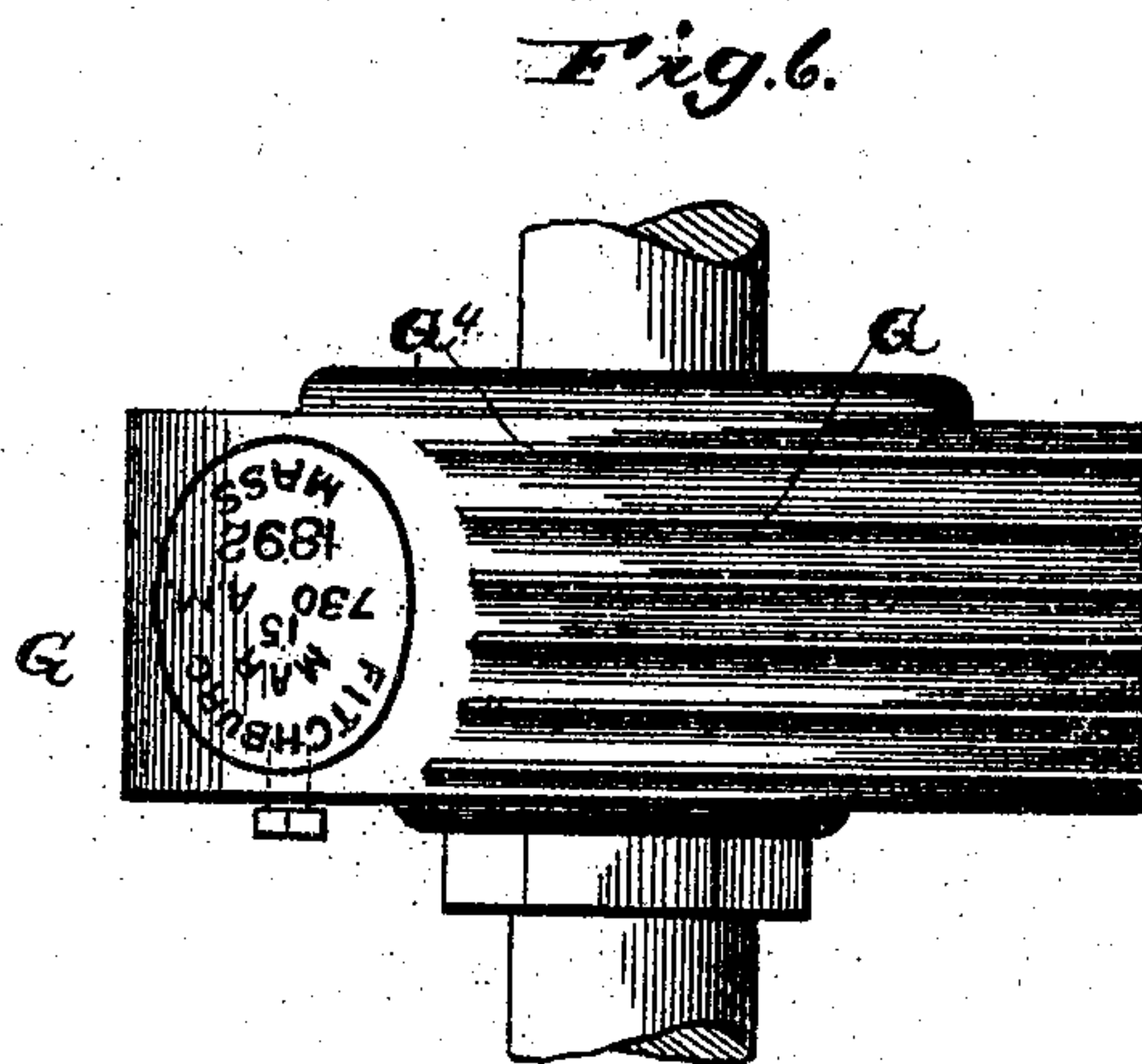
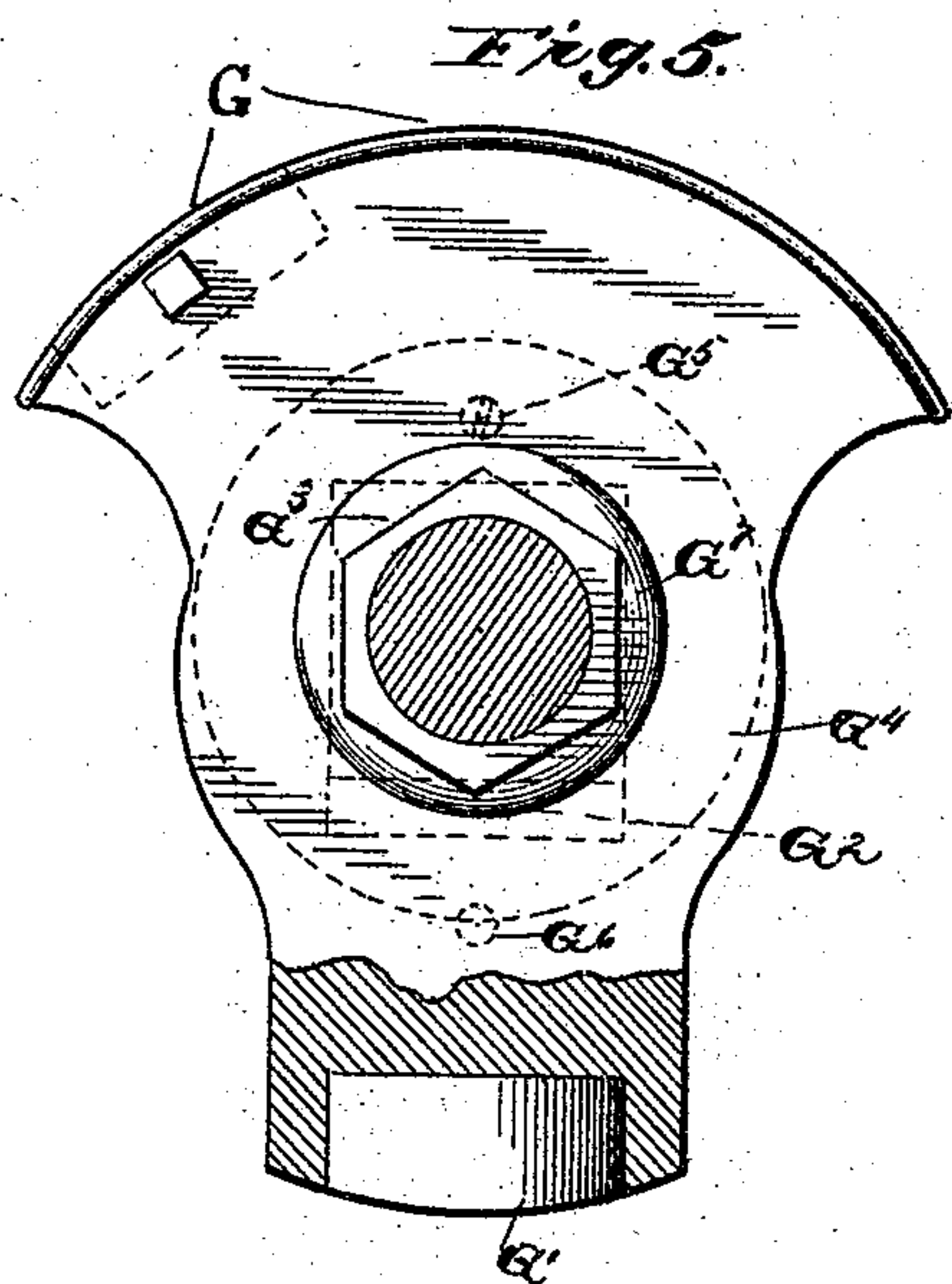
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UNITED STATES PATENT OFFICE.

GEORGE E. BARNARD, OF FITCHBURG, MASSACHUSETTS.

MAIL-MARKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 501,816, dated July 18, 1893.

Application filed October 19, 1892. Serial No. 449,339. (No model.)

To all whom it may concern:

Be it known that I, GEORGE E. BARNARD, of Fitchburg, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Mail-Marking Machines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

This invention relates to that class of machinery employed for canceling stamps and post marking letters and particularly to that class of machinery employing a printing mechanism and carrying belt, inclined in a plane at right angles to the direction of movement of the belt, in order to facilitate the feeding and positioning of the letters.

The object of the invention is to provide a machine of this character which shall be simple, accurate and easily operated making the initial cost, as well as the cost of running, very low.

The invention consists in certain novel details of construction and combinations and arrangements of parts all as will be now described and pointed out particularly in the appended claims.

Referring to the accompanying drawings: Figure 1 is an elevation looking at the lower side of a machine embodying my invention. Fig. 2 is a side elevation looking down on the machine at such an angle as to show the shafts in end elevation. Fig. 3 is a transverse sectional view taken through the delivery end looking toward the opposite end. Fig. 4 is a detail section of the bearing for the platen cylinder. Figs. 5, 6, 7 and 8 are detail views of the printing die. Fig. 9 is a diagrammatic detail view illustrating on an exaggerated scale the difference in the level of the belt pulleys.

Similar letters of reference in the several figures indicate the same parts.

The framing of the machine, lettered A in the drawings, may be of any approved character, and upon it are mounted inclined sills or timbers B, preferably supported by iron brackets or angles B' and carrying yokes or bearings C provided with journal boxes for

the shafts C' supporting the carrying belt pulleys. These shafts are arranged at the same inclination as the sills B, *i. e.*, about forty-five degrees, and one of them, preferably that at the delivery end is employed as a drive shaft, receiving its motion from a power mechanism to be presently specifically described.

The carrying belt E passes around pulleys carried by the shafts C' and at a point between the shafts, preferably near the drive shaft are arranged standards F adapted to carry the printing mechanism, in position to operate upon the mail matter carried by the belt.

The printing mechanism itself consists essentially of a rotary impression surface or die G G' mounted on an inclined transverse shaft held in bearings in standards F and driven by gear wheels *g g'* meshing with each other and mounted respectively on the die shaft and drive shaft. The gears are so proportioned that the surface speed of the die or impression surface and belt are the same in order to secure perfect impressions. A platen or bed roller H is journaled in movable boxes *h* mounted in oblong openings in standards F in position to support the belt immediately below the die, said roller being held up to its place with a yielding pressure by means of springs *h'* (Fig. 4) bearing against the ends of the roller shaft where they are retained by loose washers *h*². To increase the elasticity of the roller it is preferably provided with a thick rubber band or covering H' as will be readily understood by those skilled in the art.

The belt pulleys, &c., it will be seen from the foregoing, are inclined transversely, or in a plane at right angles to the direction of movement of the belt, that is to say, the belt being flat, one edge is higher than the other and letters deposited on the belt will slide down to the lower side or edge and as the belt moves longitudinally, they will be carried toward one end of the machine.

Above the die and carried by a bearing I bolted to the top of the lower standard F is a shaft K carrying at the upper end an inking roller L supplied with ink from any suitable source. The shaft K is journaled loosely in the bearing I, so as to be capable of a longitudinal movement therein to remove the ink-

ing roller from the die as shown in dotted lines, Fig. 3, to allow the type to be cleaned, changed or inspected, and the said shaft receives its motion through a pulley l driven by
 5 a belt l' from a pulley l^2 on the die shaft. A feather and groove connection is provided between the said pulley l and shaft, for which purpose a longitudinal slot is formed in the shaft and a key k working in the same locks
 10 the pulley and shaft against independent rotation. The pulley being on the lower side of the machine, would tend to slide down to the end of the shaft, to prevent which it has a groove k' formed in its hub and the bearing I has a spring catch k^2 engaging in this
 15 groove as shown in Fig. 3. To hold the inking wheel and shaft in elevated position while inspecting the type, a spring k^3 may be located on the shaft and adapted to enter the
 20 hub of the pulley l and create sufficient friction when the shaft is pushed up to hold the parts elevated. The lower end of the shaft K forms a handle extension by which the shaft and ink roller may be moved up to the position shown in dotted lines, as will be readily
 25 understood.

The circumference of the inking roller is preferably made one sixth larger than the circumference of the circle described by the die
 30 and the driving pulleys are so proportioned as to give the same circumferential speed, the result being that the surface of the inking roller is acted on successively throughout instead of being struck at the same point every
 35 time the die is brought into contact therewith, as would be the case if both were the same size.

I prefer to employ a single die adapted to mark the outgoing or incoming mail matter,
 40 to which end the die has two separate printing surfaces G G' , the wider or longer surface shown in Fig. 6, being for the purpose of marking outgoing mail and canceling the stamps and that shown in Fig. 7 for marking
 45 incoming mail. Were the die mounted concentrically on the shaft, it is obvious both surfaces would be brought into action at each rotation, to prevent which, the said die is adapted to be shifted into eccentric position throwing one or the other of the surfaces out as desired. Various mechanical devices might be employed to accomplish this but I prefer to form a simple rectangular opening G^2 through the die its greatest length being in line with
 50 the two impression surfaces and fit the same on a squared portion or bushing G^3 on the shaft.

A collar G^4 having a pin or pins G^5 adapted to co-operate with one or the other of the
 60 holes G^6 in the die, serves to hold the die in one or the other of its positions of adjustment. The die may be held up against the collar by a nut G^7 as shown in Fig. 3, if desired.

65 Much difficulty has been heretofore experienced in securing a perfect and regular feed of letters to the die or printer and especially

in securing the regular even movement of a positively driven belt of sufficient width to answer the requirements of a machine of this
 70 character.

In overcoming the difficulties heretofore experienced I now make use of a wide carrying belt provided along the center line with grommets or eyelets and on the driving shaft I
 75 mount three pulleys the two outer ones being wide and loose on the shaft and the center one being narrow and fast on the shaft, with pins or projections on its periphery for co-operating with the grommets or eyelets in the
 80 belt, whereby the belt is driven positively and the printing mechanism may be timed to strike at exactly the proper points on its surface. The number of grommets in the belt should of course be a multiple of the number of pins
 85 on the pulley to simplify the proportions given the gears. At the lower edge of the belt and mounted on the frame is a fixed guard M extending throughout the whole length of the machine and preferably having
 90 along its upper edge a supplemental inclined guard m adapted to prevent the rising of the letters after being positioned, said guard being rough finished to retard the letters as will presently appear.

Any available power may be employed to drive the machine, but I prefer to employ a foot or manual power mechanism consisting of a drive wheel O on a shaft o journaled in a frame P and carrying at the inner end a
 100 small gear p meshing with a larger gear Q on a shaft R. This shaft R as well as the other parts of the power is in a horizontal position and I prefer to connect the said shaft R and drive shaft C' by means of a flexible coupling
 105 such as a spiral spring S. Thus power applied to the crank of the drive wheel causes the machine to run as fast as necessary, and owing to the construction which permits of the system of gearing down the expenditure of
 110 power is very slight.

The belt is provided with cleats or ribs T extending from the upper edge down to a point lower than the upper edge of the smallest envelope which the machine can operate
 115 upon, and positioned with such relation to the die as to bring the letters to just the proper point to receive the impression and have the stamps canceled.

In the practical operation of the machine,
 120 the letters are dumped by the collectors on a table U mounted in a slightly inclined position with its lower edge just at the edge of the belt, and from the table they are allowed to drop or are faced one by one upon the belt
 125 down which they slide until coming in contact with the fixed guard, their downward movement is checked and they naturally assume a position parallel with the belt. Friction against the guard retards them until
 130 one of the cleats striking the upper corner forces them along beneath the die where they are properly marked. When the letter has reached its position against the guard it is

prevented from flying up by the overhanging supplemental guard. Hence there is hardly a possibility that any letter will escape being properly marked. At the end of the belt a
5 suitable chute or receiver may be arranged to catch the letters as they are discharged and the belt itself is preferably caused to occupy a slightly inclined position in the direction of its movement, as shown in Fig. 2 the
10 letters being thus caused to travel up hill as it were, and therefore position themselves all the more readily. Below the belt and resting on the framing in any suitable manner is a wiper W, of any suitable absorbing substance
15 and adapted to remove from the belt any ink should the die happen to strike where there was no letter. The wiper extends along the belt quite a distance, but it needs be only as wide as the portion of the belt adapted to be
20 struck by the die.

The machine as a whole it will be noted is extremely simple being composed of few and inexpensive parts. The calculations for securing the proper co-operation of the parts being
25 simple, enable the parts to be constructed and assembled by an ordinary mechanic; hence adapting the machine for use in offices located in relatively small towns, &c.

Having thus described my invention, what
30 I claim as new is—

1. In a machine of the character specified, the combination with the printing die, of the inclined carrying belt, the driving pulley co-operating positively therewith, the loose, sup-
35 porting and guiding pulleys at each end and gearing between the drive pulley and die whereby the proper relation of the die and belt is preserved, substantially as described.

2. In a machine of the character specified,
40 the combination with the printing die, of the inclined belt, the drive shaft having the fast pulley thereon, positively cooperating with the belt, and the loose guiding and supporting pulleys on the drive shaft at each side of
45 the drive pulley; substantially as described.

3. In a machine of the character specified, the combination with the rotary die, of the inclined carrying belt having the central line of grommets or eyelets, the narrow drive pul-
50 ley having pins or projections entering said grommets or eyelets and the loose supporting and guiding pulleys at each side of the drive pulley; substantially as described.

4. In a machine of the character specified,
55 the combination with the rotary die, of the carrying belt inclined in a plane at right angles to its direction of movement, the drive shaft having the central drive pulley and outside loose guide pulleys, the gear wheel on
60 the end of the drive shaft and the gear wheel meshing therewith mounted on the die shaft; substantially as described.

5. In a machine for marking letters, the com-

bination with the die and carrying belt in-
clined in a plane at right angles to its direc- 65
tion of movement and having ribs or cleats thereon, of a fixed guard extending along the lower edge of the belt for positioning the let-
ters and retarding them until carried forward
positively by the ribs or cleats; substantially 70
as described.

6. In a machine for marking letters, the com-
bination with the die and carrying belt in-
clined in a plane at right angles to its direc- 75
tion of movement, and provided with ribs or cleats, of the fixed guard along the lower edge of the belt against which the letters travel and the overhanging supplemental guard on the fixed guard; substantially as described.

7. In a machine for marking letters, the com- 80
bination with the rotary die and carrying belt inclined in a plane at right angles to its direction of movement, of the drive shaft carry-
ing the inclined guiding and drive pulleys at one end of the belt, the intermediate bed 85
or platen roller supported in spring pressed bearings beneath the die and gearing between the drive shaft and die; substantially as de-
scribed.

8. In a machine of the character specified, 90
the combination with the die shaft, of a double faced die mounted thereon and adjustable in a line between the two faces, whereby either face may be moved out into operative posi-
tion; substantially as described. 95

9. In a machine of the character specified,
the combination with the die shaft, having a squared portion thereon, of a double faced die having a rectangular opening therein longer
in the direction of the faces, and fitting the 100
rectangular portion of the shaft with means for holding either face projected; substan-
tially as described.

10. In a machine of the character specified,
the combination with the inclined belt and die, 105
of the inking wheel cooperating with the die the inking wheel shaft mounted to move longitudinally in an inclined bearing and having the lower end prolonged to form a handle ex-
tension, whereby it may be moved up away 110
from the die; substantially as described.

11. In a machine of the character specified,
the combination with the inclined belt and die, 115
of the inking wheel cooperating with the die, the inking wheel shaft mounted to move lon-
gitudinally in an inclined bearing whereby the wheel may be moved away from the die a
drive pulley keyed to said shaft and held against longitudinal movement therewith by
the frame and a spring for holding the wheel 120
in elevated position; substantially as de-
scribed.

GEORGE E. BARNARD.

Witnesses:

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MAUDE M. MATTHEWS.